Memory Troubleshooting Facts

Memory problems usually are found in one of the following categories:

- Either more memory is installed than the system supports or the CMOS settings are wrong.
- Incompatible or broken modules.
- Improperly installed modules or dirty or defective sockets.

You should be able to identify the memory problems and meanings of the following errors:

Problem	Description
The PC boot fails and sounds a beep code	Either the memory may be installed or BIOS configured improperly.
The PC boots, but the display remains blank	Either a card or memory module is not seated, or the system includes unsupported memory. Non-parity RAM is incompatible with ECC memory and SDRAM is incompatible with EDO memory.
The PC boots, but the memory count is incorrect	The POST failed to recognize all of the memory. This can happen with incompatible memory installation. Remember to avoid combining dual-bank with single-bank memory. If any problem is detected during system boot-up, check the BIOS settings. **Note:** The system will only check for memory installed in memory slots on the motherboard. Memory that is on expansion cards or installed on other devices will not be counted and tested.
Error Messages: • Memory mismatch error • Memory parity interrupt at *x* • Memory address error at *x* • Memory failure at *x*, read *y*, expecting *z* • Memory verify error at *x*	These messages usually indicate a failing module or discrepancies between new and old memory. Avoid the latter problem by not mixing new and old memory. Ensure that the memory is functioning properly and is compatible with the system. If the memory is good and fully compatible, these error messages could mean that the motherboard has a problem.
Software-generated memory problems	Software errors include: • Registry error. Parts of the registry are written to faulty sections of RAM. • Exception error. A software bug can cause this type of error. • General-protection fault. A software bug can cause this type of error. • Page fault. A software bug can cause this type of error. For software errors, check to see if the memory address indicated in the error is consistently the same. If so, check the memory. Otherwise, reboot the system or update the software.
Intermittent problems	One of the tougher detection challenges is the intermittent occurrence of error messages, crashes or sudden reboots. The trouble in diagnosing this situation is the number of potential problems, including timing, heat, corrosion, fluctuating power, loose connections, EMI, or a combination of these problems.

You should be familiar with this list of critical times when memory problems manifest themselves:

- First boot-up of a new computer. Memory is not properly seated, missing, or the motherboard is defective.
- After a memory upgrade. Ensure that the memory is compatible and was installed and configured properly. For example, if system includes DIP or SIMM, ensure that banks are full before placing memory in a new bank.
- After software installation. New software requires more memory and can cause problems.
- After hardware installation or removal. Incompletely or improperly installed hardware can cause errors that appear to be memory related.